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RESEARCH ARTICLE

The Employment Contracts Act 1991 and the labour share of income in New Zealand: an analysis of labour market trends 1939–2023

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ABSTRACT
The share of wages and salaries in New Zealand's Net Domestic Income fell steadily from 1981 to 2002, with no apparent break in trend coinciding the Employment Contracts Act 1991 (the ECA). However, adjusting the aggregate wage-share measure to control for changes in the size of the employee workforce relative to the total adult population yields a measure that we call [following Pen, J. (1971) *Income distribution*, translated by T.S. Preston. Allen Lane, the Penguin Press] the Wage Ratio – compensation per employee relative to national income per adult. That ratio, supported by a statistical analysis of its components, highlights the early 1990s as a decisive turning point and shows how the conventionally-measured labour share may fail to identify crucial changes in the balance of power in the labour market.

1. Introduction

Widening income and wealth inequality have been a conspicuous feature of Western advanced economies over recent decades (Piketty, 2014) and have sparked a rapidly growing literature. An important strand in that literature has focused on the falling share of wages and salaries in total factor payments (Autor, Dorn, Katz, Patterson, & Van Reenen, 2017, 2020; Azmat, Manning, & Van Reenen, 2012; De Loecker, Eeckhout, & Unger, 2020; Elsby, Hobijn, & Sahin, 2013; Karabarbounis & Neiman, 2014; Stansbury & Summers, 2020; Taylor and Ömer 2020) and this has been the subject of several New Zealand studies (Bertram, 2000; Bridgman & Greenaway-McGreevy, 2018, 2022; Conway, Meehan, & Parham, 2015; Easton, 1996; Fraser, 2018; Rosenberg, 2017a, 2017b). The New Zealand history of this Labour Income Share (LIS) measure from 1939 to 2023 is in Figure 1, which is an updated version of Rosenberg's (2017a, p. 82), (Figure 3). The pre-tax share of wages and salaries ('compensation of employees') in New Zealand's Net Domestic Income over eight decades from 1939 exhibits four decades of relative gains for employed labour until about 1980, followed by two decades of a falling share that was briefly reversed from 2003 to 2009, but has since resumed its downward trend.

Between 1985 and 1994 the New Zealand economy was subjected to major policy shocks which included cuts to welfare benefit levels and enactment of the Employment Contracts Act 1991 (ECA). Easton (2020, p. 541) described these changes as a 'new structure that would substantially reduce the power and scope of the unions, while the social security cuts were intended to lower the floor

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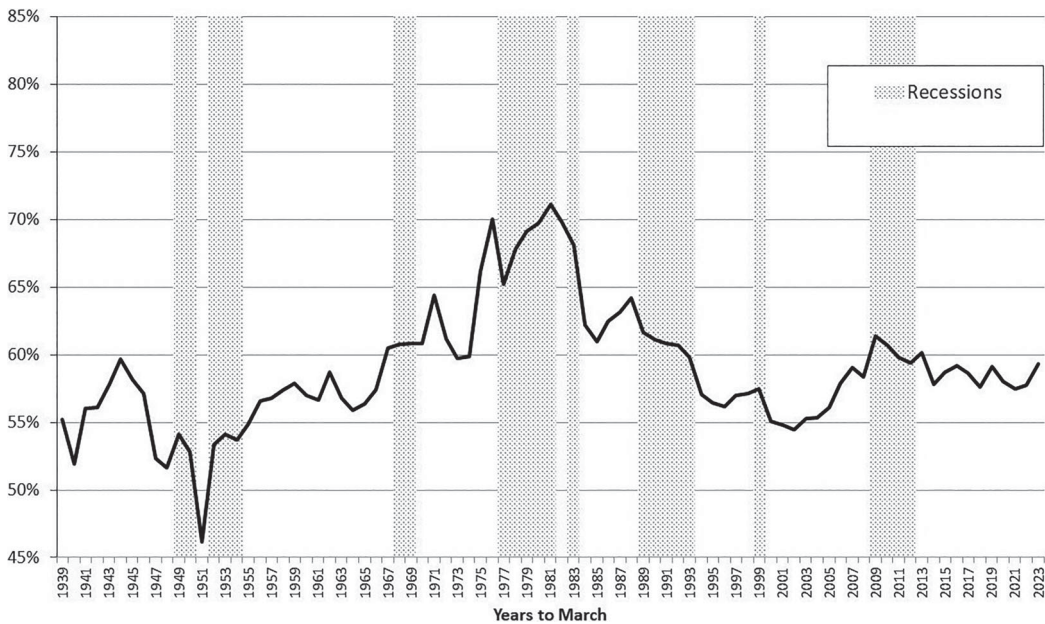
Figure 1. The labour income share of net domestic Income 1939–2023. Source: Table 1 in Statistical Appendix.

beneath wage rates'. A question arising from Figure 1's picture of a steadily falling labour share from 1981 through to 2002 is why the ECA produces no obvious break in the trend, which seems to have turned down in 1982 rather than 1992.[1]

The question is not new. Bertram (2000, p. 11) commented with surprise that 'the Employment Contracts Act looks to have been simply a symptom of the general trend, not a significant event in its own right'. Similarly, Easton (1996, p. 107) suggested that 'the dramatic change in the factor distribution began before the reforms'. Bridgman and Greenaway-McGreevy (2018, p. 126) make a similar comment. Yet Hall and Scobie (2005, p. 17 Figure 13 and p. 20 Figure 17) presented evidence of a sharp upward step in the return to capital and a downward step in the real wage in 1992 and 1993, the two years following the ECA, while qualitative descriptions of the impact of the ECA such as Macfie (2021 chapters 6 and 7) and Dannin (1995) portray it as a decisive anti-labour turning point in labour relations.

We find in this paper that the steady downward trend from 1982 to 2002 in New Zealand's LIS does not represent a steady fall in the bargaining power of labour. Once the aggregated LIS is broken down into two separate components – changes in the ratio of the annual wage to national income per adult (what Pen (1971) p. 166 called the 'Wage Ratio'), and changes in the number of employed wage-earners relative to the total adult population – the early 1990s turn out to have been a decisive turning point in the former, just as the qualitative record suggests, initiating a long period of wage suppression similar to that described for the USA by Mishel and Bivens (2021) and Taylor and Ömer (2020). The most immediate (though not the only possible) explanation is the ECA.

The result holds across both male and female workers and so is not driven by rising female participation in the labour force. Analysis of the changing industry composition of total employment and of trends in self-employment similarly leaves our basic result intact. Statistical testing for structural breaks in the time series underlying the Wage Ratio finds significant shifts around 1974 and 1993, with the second of these ushering in an era when rising participation of the adult population in paid employment pressed up against a constrained or falling share of compensation of employees in total income, driving the Wage Ratio down.

In the analysis that follows, we are concerned with the before-tax distribution among competing claimants of the net factor income of the New Zealand economy from 1939 to 2023, after allowance

has been made for the consumption of fixed capital ('net') but before direct taxes and transfers, and with indirect taxes and subsidies excluded from the measure of total income. We prefer the net measure of factor income (Net Domestic Income) to the more common gross income measure of aggregate income because consumption of fixed capital is not available for distribution between workers and owners of capital without reducing the productive capacity of the economy. We have adjusted NDI by excluding imputed rent on owner-occupied property because it has no labour content and makes no actual factor payment in cash terms. The focus of the analysis is on distribution of the actual flow of factor payments year by year into the economy, leaving aside imputed flows of income from asset ownership, both capital gains and imputed rentals from home ownership, which are an implicit reward to owners of capital but employ no labour and therefore are not meaningful in considering the dynamics of the wage share.

Section 2 provides the theoretical background to our decomposition of the LIS. Section 3 sets out the numbers. Section 4 concludes.

2. Decomposing the labour share

A common practice among economists working on distribution has been to take the aggregate compensation of employees, as shown in the national accounts, and divide it by some measure of national income, to show the share of labour in the economy's total marketed output. This is then interpreted as either the competitive return to labour in an aggregate (or aggregated[2]) production function (Kaldor, 1957; Pullen, 2010; Solow, 1956) or as the outcome of wage-bargaining in imperfectly-competitive labour markets (Blanchflower & Oswald, 1994, 1995; Card, 1995; De Loecker *et al.*, 2020; Layard & Nickell, 1985; Layard, Nickell, & Jackman, 2005; Manning, 2003; Mishel & Bivens, 2021; Stansbury & Summers, 2020; Taylor and Ömer 2020).

The renewed interest in the LIS in the last decade or so stems from the empirical overturning of Kaldor's (1957, p. 591) 'stylised fact' that the share had 'shown a remarkable constancy in "developed capitalist economies"'. The LIS has swung steadily against labour, implicitly in favour of capital and/or rentiers (receivers of pure profits) (Eggertsson, Robbins, & Wold, 2018). There have been numerous other, sometimes conflicting, explanations, including ones based on the elasticity of substitution between capital and labour, new technologies, and unmeasured intangible capital (for example, Autor *et al.*, 2017, 2020; Karabarbounis & Neiman, 2014, 2018). Bridgman and Greenaway-McGreevy (2022) provide a partial explanation in terms of the restructuring of the state in a number of countries, which in New Zealand covers the period from 1986. However that leaves unexplained, at least for New Zealand, the falling LIS in the private market sector, and only partly explains the movement in the LIS prior to 1986.

We intend to address some of these alternative explanations in a forthcoming paper, but for the present discussion we acknowledge that there are other impacts on the LIS which may explain aspects that our present analysis does not, despite the strength of the relationships it finds.

In bargaining models the LIS is commonly treated as a measure of the balance of power in the labour market between labour and capital, so that a falling LIS is seen as indicating a weakening in the aggregate market power of labour. But as Pen (1971) and Blaug (1974) pointed out, this overlooks the fact that the LIS is driven not only by relative market power but also by the economy-wide employment rate. As Blaug put it (1974, p. 57, emphasis added).

> [T]he great mystery of the modern theory of distribution is, actually, why anyone regards the share of wages … in total income as an interesting problem. It has, after all, little practical relevance. The standard of living of workers is reflected in the real wage rate in terms of the consumer price index and **their relative position is better measured by the ratio of the average wage per worker to the average income per head of the population** than by labour's relative share.

This measure, which Pen (1971) labelled the Wage Ratio, adjusts the ratio of the total wage bill to total income to allow for changes in the number of employed workers relative to the total population.

The crucial point here is that as the employment rate of the working-age population rises or falls, this will push the LIS up or down provided that the total wage bill as a proportion of total income rises or falls correspondingly. Failure to account for changes in the employment rate can therefore produce misleading interpretations of observed changes in the LIS. As we show below, this explains why the New Zealand LIS chart in Figure 1 gives no indication of the dramatic impact of the ECA on the market power of labour in the early 1990s.

In a recent paper, Bichler and Nitzan (2020, p. 3) have shown how the Wage Ratio can be derived from the national accounts. Their decomposition of the labour share runs as follows:

$$
\begin{aligned}
&\frac{\text{compensation of employees}}{\text{national income}} \\
&\equiv \frac{\text{compensation of employees}}{\text{number of employees}} \times \frac{\text{number of employees}}{\text{adult population}} \times \frac{\text{adult population}}{\text{national income}} \\
&\equiv \frac{\text{number of employees}}{\text{adult population}} \times \frac{\frac{\text{compensation of employees}}{\text{number of employees}}}{\frac{\text{national income}}{\text{adult population}}} \\
&\equiv \frac{\text{number of employees}}{\text{adult population}} \times \frac{\text{compensation per employee}}{\text{national income per adult}} \\
&= [\text{Labour employment rate}] \times [\text{Wage Ratio}] \quad (1)
\end{aligned}
$$

The number of 'employees' in the adult population is a matter of labour-market structure, driven by a variety of forces, while the Wage Ratio is a direct measure of the degree to which waged labour captures a share in the value of what it produces.[3]

Whether the number of employees includes unemployed workers is not explicitly addressed in this decomposition. If the unemployed are excluded, the 'employment rate' in Equation (1) is distinct from the 'participation rate' which includes the unemployed, who can be regarded as workers earning zero labour income. A further widening of the participation-rate concept to the one used in official labour statistics brings in the self-employed; on the income side this requires some part of their 'mixed income' to be imputed as a wage-equivalent return to their labour.

3. Results

Tables 1–7 in the statistical appendix to this paper set out our application of Equation (1) to data for employees, the unemployed and the self-employed in the New Zealand national accounts from 1939 to 2023. Figures 2, 8, and 9 summarise the results for, respectively, employees and the unemployed; the self-employed; and the total labour force including the self-employed. In each of these charts the Wage Ratio is drawn at the top, the participation rate for the relevant labour-force group at the bottom, and the corresponding aggregate labour share of 'adjusted Net Domestic Income' in the middle.

3.1. Employees

We begin in Figure 2 with the conventional notion of 'labour' and the 'labour share', focusing on paid employees. Ratios for 'employees', defined as all persons whose main job is one earning wages and salaries, are shown by the solid lines in Figure 2. The wider wage-labour force including the unemployed – whom we treat as being in a sense employed for a zero wage – is represented by the dashed lines in Figure 2.

It is immediately apparent that from the 1940s to the early 1980s, the upward trend of the aggregate labour share was driven by the trend of employment, not wages. Easton (1983, p. 35) made a similar point: 'a major explanation for this increase [in the wage share of GDP] is that the employee proportion of the labour force has been increasing'.[4] The Wage Ratio in Figure 2 shows a gradual downward
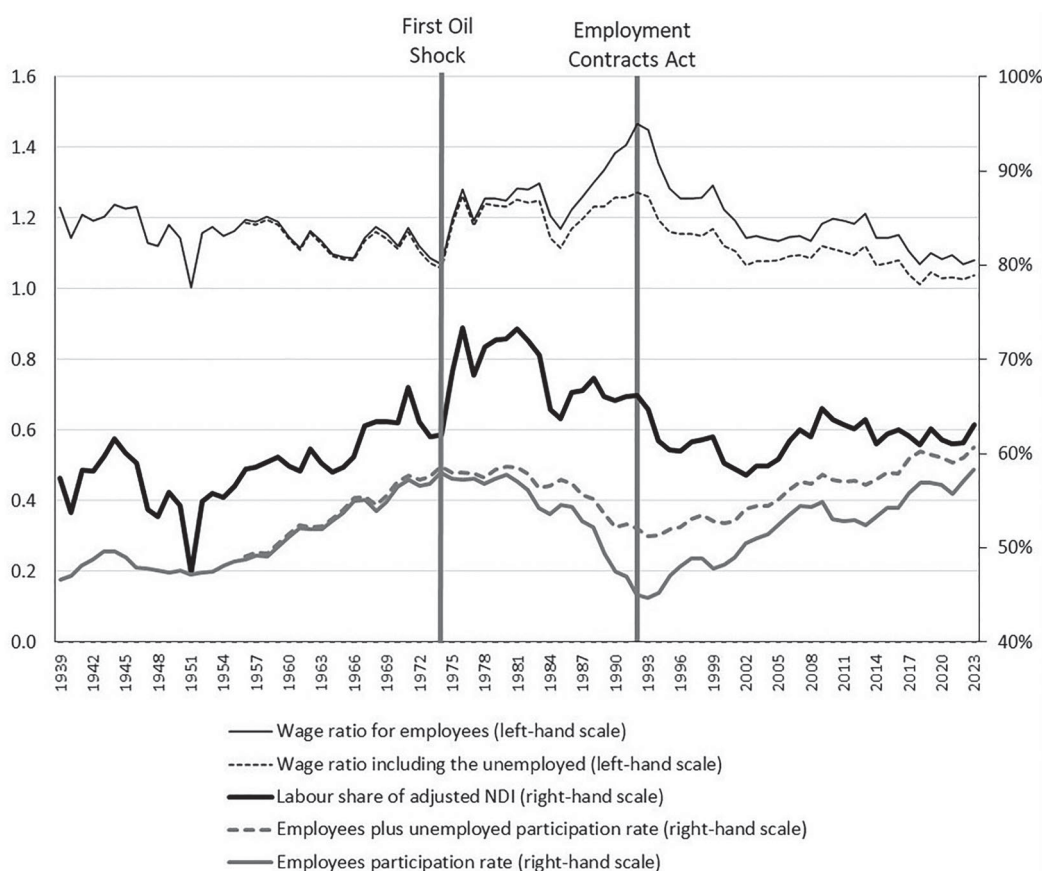
Figure 2. The two drivers of the conventional labour share, 1939–2023. Source: Table 1 in Statistical Appendix.

trend from 1939 until the mid-1970s, falling from roughly 1.20 pre-war to below 1.10 by 1974. Over this period it is the rise in the number of employees as a percentage of the adult population, from 45% to 55%, that explains the increase in the aggregate labour share. The relative constancy of the Wage Ratio means that the labour share of total income increased as the employment rate of the adult population rose. That is, as women, Maori and new immigrants entered the employed labour force, they were collectively rewarded with an increase in the share of the product allocated to the 'wages fund'.

From 1974 to 1992 a different pattern emerges, with a falling employment rate offsetting a rising Wage Ratio. Up to about 1981 the dominant influence on LIS was the Wage Ratio; thereafter it was employment. The resulting 1981 turning point for LIS reflected not a sustained decline in labour's market power, but the impact of a falling employment rate. Then about 1992, the Wage Ratio turns sharply down at the same time as the employment rate turns up. The relatively flat long-run path of the LIS thereafter conceals the steady process of wage suppression during the three decades to 2023. As a rising proportion of adults entered paid employment the wage bill's share of total income (LIS) did not rise accordingly, in contrast to the experience of the 1950s and 1960s. Instead, a fairly constant percentage of adjusted NDI was spread over a growing employee group, with the falling Wage Ratio tracking employees' loss of market power in wage bargaining.

Figure 3, tracking the numerator and denominator of the Wage Ratio, shows that the real wage rate tracked closely with adjusted NDI per adult throughout the first period 1939–1973. Then, following the first oil shock in 1974, those two series diverge. As the proportion of the adult population in waged
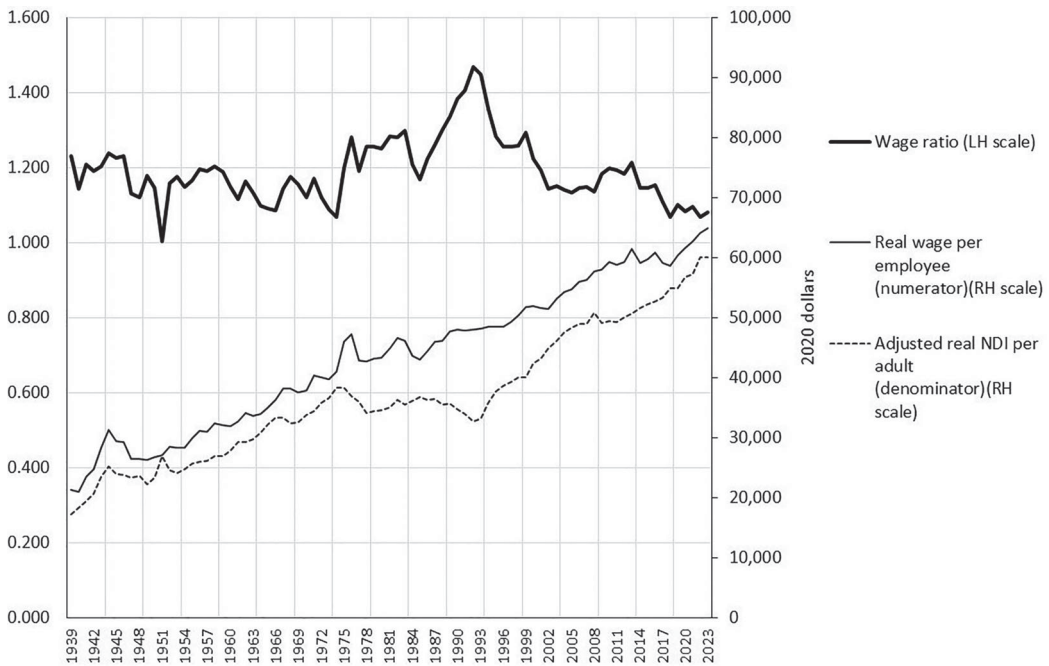
Figure 3. Components of the wage ratio. Source: Table 2 in Statistical Appendix.

employment ceased to grow and then went into reverse (Figure 2), Figure 3 shows that NDI per adult embarked on a downward path that persisted until 1992, while the real wage rate of the employed held up through the 1980s, albeit with fluctuations. By 1982 this combination of a falling denominator and steady numerator had restored the Wage Ratio back to its pre-war level by 1981 while carrying the aggregate labour share in Figure 2 to a short-lived peak.

Then the onset of rising unemployment in the 1980s, cutting the waged employment rate from 58% in 1974 to 45% in 1992 (when unemployment was at 11%), combined with a legislated wage freeze from June 1982 to March 1984, dragged the aggregate labour share in Figure 2 down during the 1980s. As the 1988–1992 downturn of NDI deepened, Figure 3 shows how it had the collateral effect of driving the Wage Ratio to a shortlived spike, peaking in the year ended March 1992.[5] Far from reflecting some surge of labour militancy, this spike reflects only downward stickiness of the real wage in the face of collapsing NDI (along with a possible shift in the composition of the employed labour force, as lower-paid workers lost their jobs). The spike, unsurprisingly, disappears as soon as the unemployed are added to the employed workers (the dotted lines in Figure 2).

1992 brought dramatic changes. The Wage Ratio fell from 1.47 in the year ending March 1992 to just 1.07 by 2018, as employment recovered from 45% of the adult population in 1991/92 to 57% by 2018. The 2018 and 2022 values of the Wage Ratio (1.07 in both years) are among the lowest since 1939 (the main exception being in 1951 during the Korean War, when booming commodity prices increased the operating surplus to a record share of national income reflected in a peak in self-employed income – see Figure 7 below).

Appendix 1 presents the results of a regression analysis of the relation between the employment rate EMP and the labour share LIS, with EMP lagged one period to reflect an assumed causal relation from EMP to LIS. The data clearly identify the three periods discussed above, with statistically significant structural breaks separating the periods. Figure 4 reproduces the key result, showing a scatter plot of LIS'$_t$ against EMP'$_{t-1}$ with three period-specific regression lines superimposed.[6]
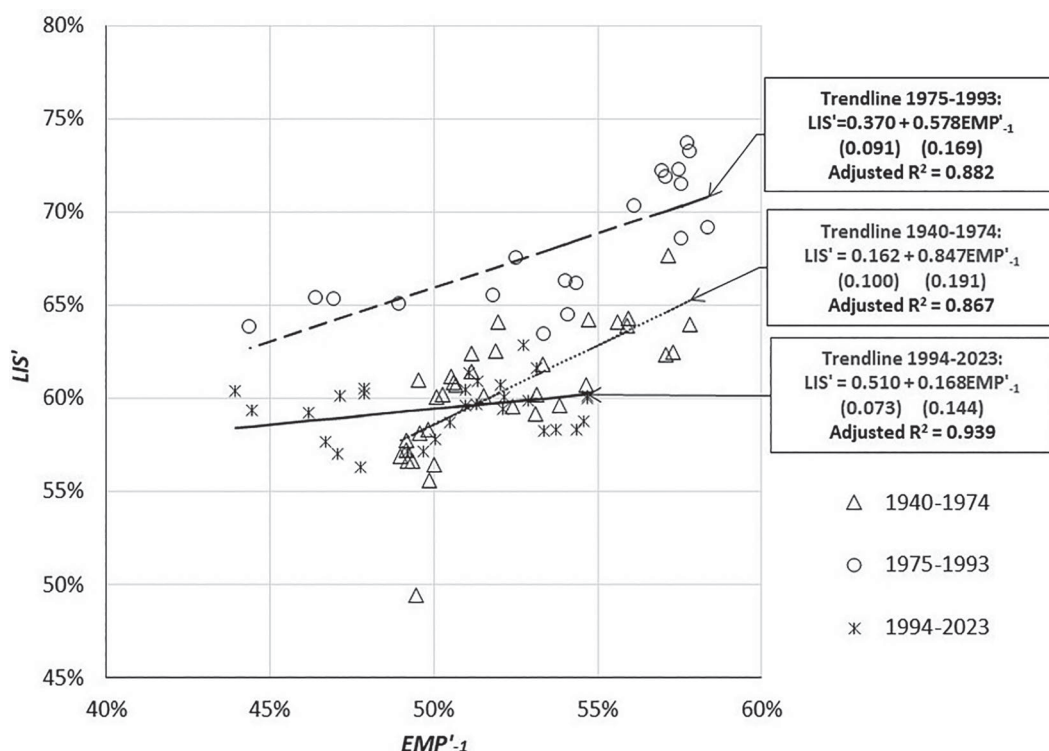
Figure 4. Regression lines of LIS against EMP for three periods. Source: Appendix 1.

Some specific shock or shocks evidently pushed the labour share up for nearly two decades between 1975 and 1993, after which it was pushed down again. The years 1975–1993 thus are identified as anomalously favourable to the labour share, relative to the long-run pattern of the years before and since, with contributing factors being the high employment rate in the early part of the period and the negative impact on operating surplus of the exogenous oil shocks. This bodily shift of the *LIS* upward at 1975 and downward at 1994 looks specific to New Zealand (other international comparisons are discussed in section 3.6 below). Real wages were successfully defended against the first oil shock's impact on NDI, which was thus borne by non-worker groups of the adult population (those whose main income came from ownership of capital, from rents, or from self-employment). But in the early 1990s the worm turned and wages could not be protected against the impact of domestic policy shocks designed to redistribute NDI away from labour earnings towards other groups (especially corporate business).

Interpreting the slopes of the regression lines in Figure 4 as indicators of the bargaining power of labour, the bargaining power (slopes) in the two earlier periods are statistically significant. While the second period shows some reduction in bargaining power, perhaps because of the 1982–1984 wage freeze, they are statistically indistinguishable. The real change comes in the third period 1994–2023 where bargaining power vanishes, the slope being statistically indistinguishable from zero.

The New Zealand labour-market story since the ECA has been one of wage suppression, combined with a rising participation rate and longer working hours of the adult population in paid employment. The wage fund's share of total income did not rise commensurately to reward this extra labour input. Multiple members of low-income families have sought low-paid work simply to make ends meet, while many self-employed receive low incomes from insecure work. The resumption of economic growth after the policy-induced recession of 1987–1993 increased employment but pushed the Wage Ratio down.
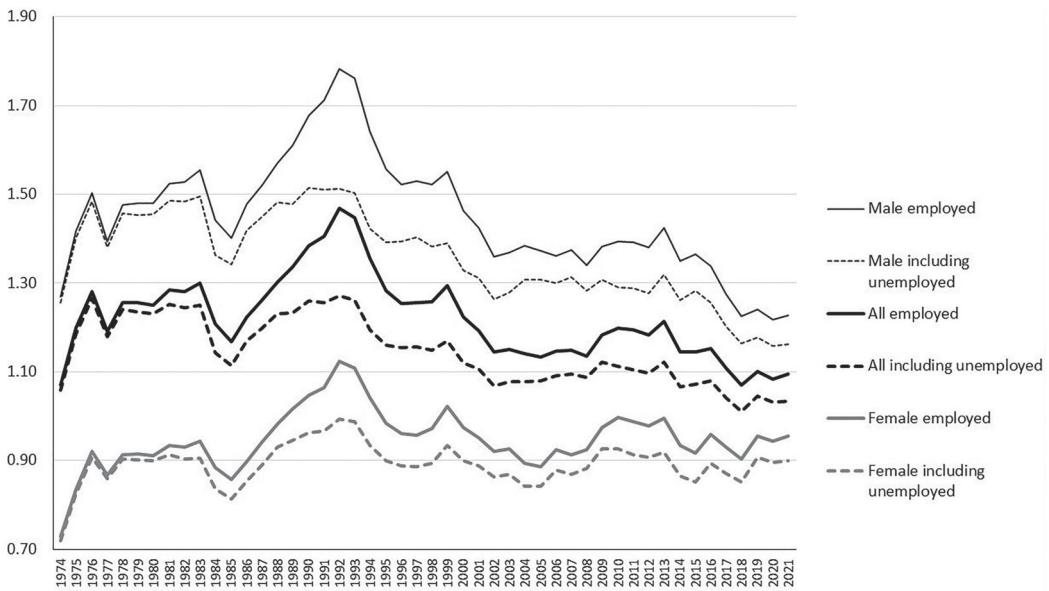
Figure 5. Wage ratio by gender, 1974–2021. Source: Table 3 in the Statistical Appendix.

3.2. Gender

Has the impact of these changes impacted women and men differently, and has the growing proportion of women in the labour force over the period of interest impacted the Wage Ratio? It is difficult to answer these important questions definitively for our full period because wage data differentiated by sex has been available only since 1973, and even then is not available for the whole economy until 1998.[7]

Figure 5 presents our best estimate of what has happened. It shows the gender-specific Wage Ratios (compensation per male employee and compensation per female employee as a ratio of the adjusted NDI per adult as described above), including and excluding the unemployed of each gender in the analysis. The ratio for all employees is also graphed. Unsurprisingly, males have a significantly higher Wage Ratio than women, though the gap has been closing.

Figure 6 shows the pay gap in weekly earnings per employee. After a sharp fall following the passage of the Equal Pay Act 1972, the gap remained broadly stagnant until the late 1990s. It rose (worsened) between 1988 and 1995, and did not dip below its 1988 level until 1999, since when it has fallen but remains far from closed. This is partly due to the hourly wage gap and partly because more women than men still work part-time.

The key finding is that women and men show the same pattern in their Wage Ratio over the period since 1974. The curve is somewhat flatter for women since about 2000, probably because of the closing gender pay gap. However, it shows the same peak in 1992, and similar periods of a falling Wage Ratio since then. Accepting that women are an integral and growing part of the labour force, their participation and the closing wage gap has somewhat slowed the fall in the income share and the Wage Ratio, even while their inequitable pay has pulled down the total compensation of employees and Wage Ratio over the entire period.

3.3. Allowing for varying hours worked

In Figure 2 above we made allowance for changes in the proportion of the wage-labour force that was unemployed at various times, but not for changes in the hours worked by the average employee –
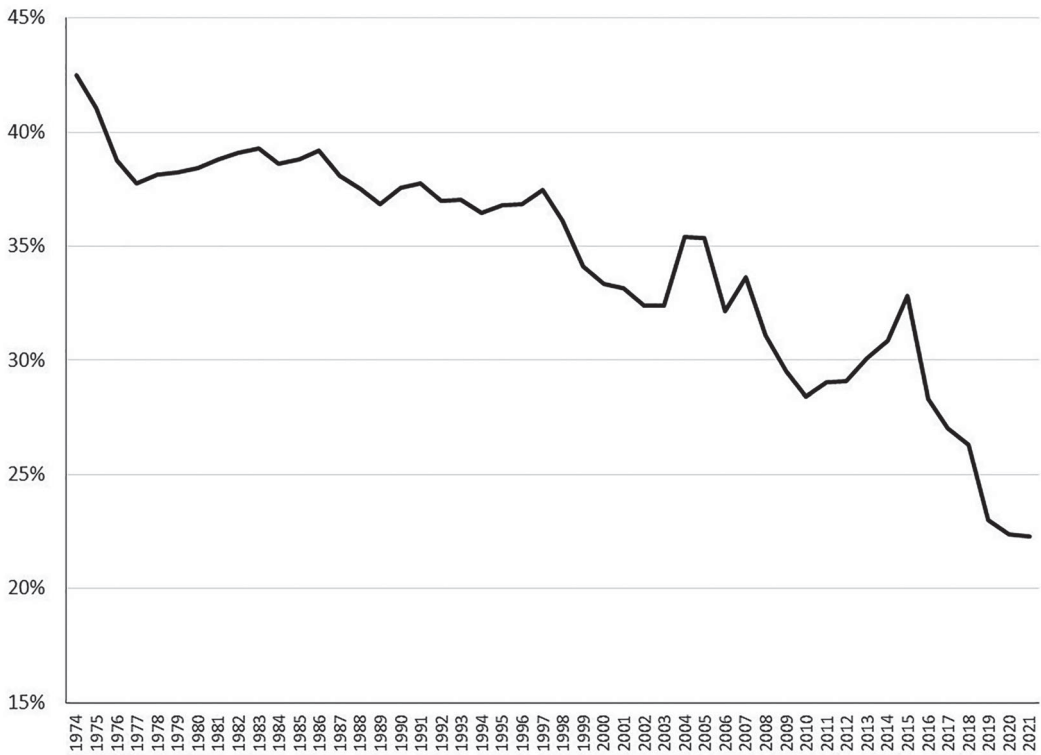
Figure 6. Gender pay gap in annual earnings. Source: Table 3 in the Statistical Appendix.

that is, the extent of over- or under-employment relative to a full-employment-equivalent standard. In Table 4 of the Statistical Appendix we re-estimate the Wage Ratio when the employee head count from Statistical Appendix Table 1 is replaced by an estimate of full-time-equivalent employees, calculated by dividing compensation of employees by the number of hours worked per year, and multiplying by 35.[8] Results are shown in Figure 7. (The procedure used to estimate total paid hours before 1957 is indirect and approximate – compensation of employees divided by an index of the reported hourly wage rate for male adults – and produces rather dramatic results for the 1940s which are heavily affected by events – and statistical shortcomings – of the war and postwar periods and should not be taken as reliable.)

The comparison of the FTE Wage Ratio with that calculated using reported total employees shows that the 1992–1993 turning point is still observed, but the Wage Ratios are at a higher level since the 1980s. (Our assumption of the same 35-hour standard full-time week throughout the 1939–2021 period may have produced some bias in the long-run shape and level of the FTE Wage Ratio curve in Figure 7.)

3.4. The self-employed

We turn now to the issue of whether treating some part of self-employed income as payment for the labour of the self-employed, and adding it to compensation of employees, might modify or overturn the results obtained above for employees alone.

Self-employed people make up a significant segment of New Zealand's total employed labour force – between 12% and 22% since 1939 (see Statistical Appendix Table 5 column 12). Their income is recorded in the national accounts as part of operating surplus, under the heading 'mixed income'
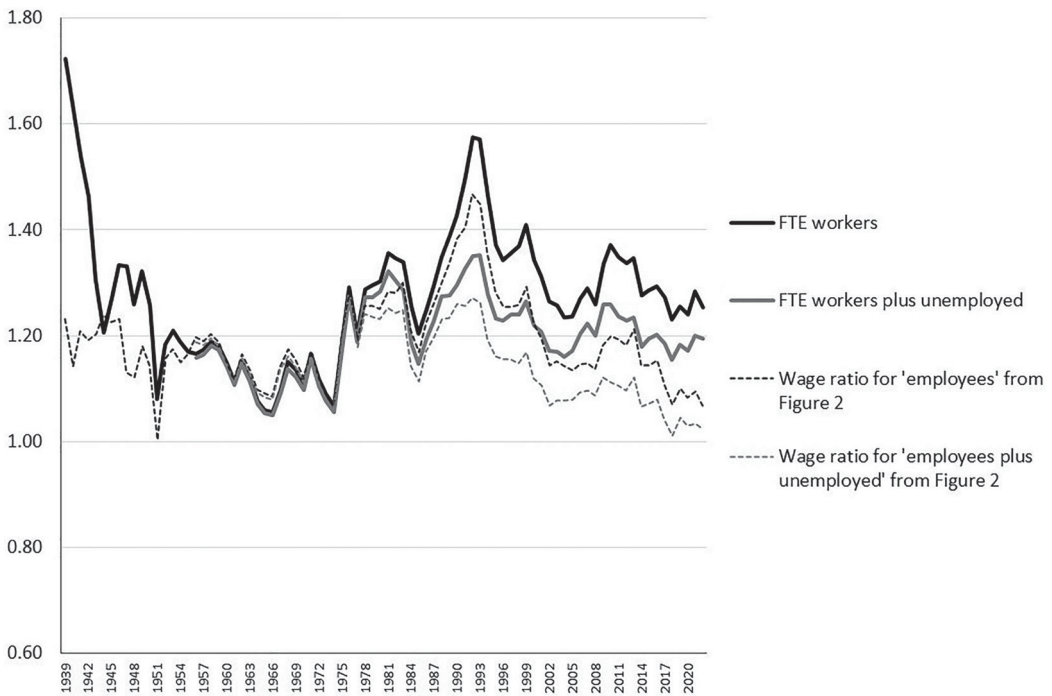
Figure 7. Wage Ratio for full-time equivalent workers, 1939–2022. Source: Table 4 in Statistical Appendix.

– mixed in the sense that it is paid on a combination of labour, capital and land inputs. Whether and to what extent any part of this should be treated as labour income is not clear, given that remuneration for self-employed labour does not pass through any arms-length market transaction, and that decisions as to its allocation are entirely intra-firm and inextricably linked to the whole-of-firm make-or-buy calculation. The issue of whether self-employed labour is fairly rewarded is largely determined by whether the self-employed are considered to have more in common with workers or capitalists.

The nature of the self-employed in New Zealand has shifted over time. In the 1950s the self-employed were mainly pastoral farmers and urban professionals – both relatively privileged groups whose commitments of labour and capital were well-rewarded[9] – whereas in the 2000s a far greater proportion of the self-employed were members of the 'precariat' – contractors on insecure terms and often on low remuneration (see for example New Zealand Council of Trade Unions Te Kauae Kaimahi (2013) and Rosenberg (2017c)). Their falling share of NDI set against a rising labour-participation rate from the late 1970s in Figure 8 below reflects this changing character and relative position of the self-employed.

Blaug (1974, p. 57) argued that 'depending on how we allocate the income of the self-employed between wages and profits, we can make the aggregate figures come out almost as we like', but this turns out not to be the case. As one might expect from the points just made about the changing position of the self-employed in the New Zealand economy, it would be surprising to find a rising Wage Ratio for the self-employed sufficient to weaken or overturn our picture of a falling Wage Ratio for the employed since 1992. Nevertheless, to explore the issue, in Statistical Appendix Table 5 we first break down our figures for net self-employed income between imputed labour income and net operating surplus in the same proportions as apply to adjusted NDI with mixed income excluded. We then consider the extreme situation where all self-employed income is treated as labour income. (The other extreme – all self-employed income treated as capital income – of course leaves untouched the results for employees in Figure 2 above.) We then calculate the implied Wage Ratios for the self-employed and plot the results in Figure 8.
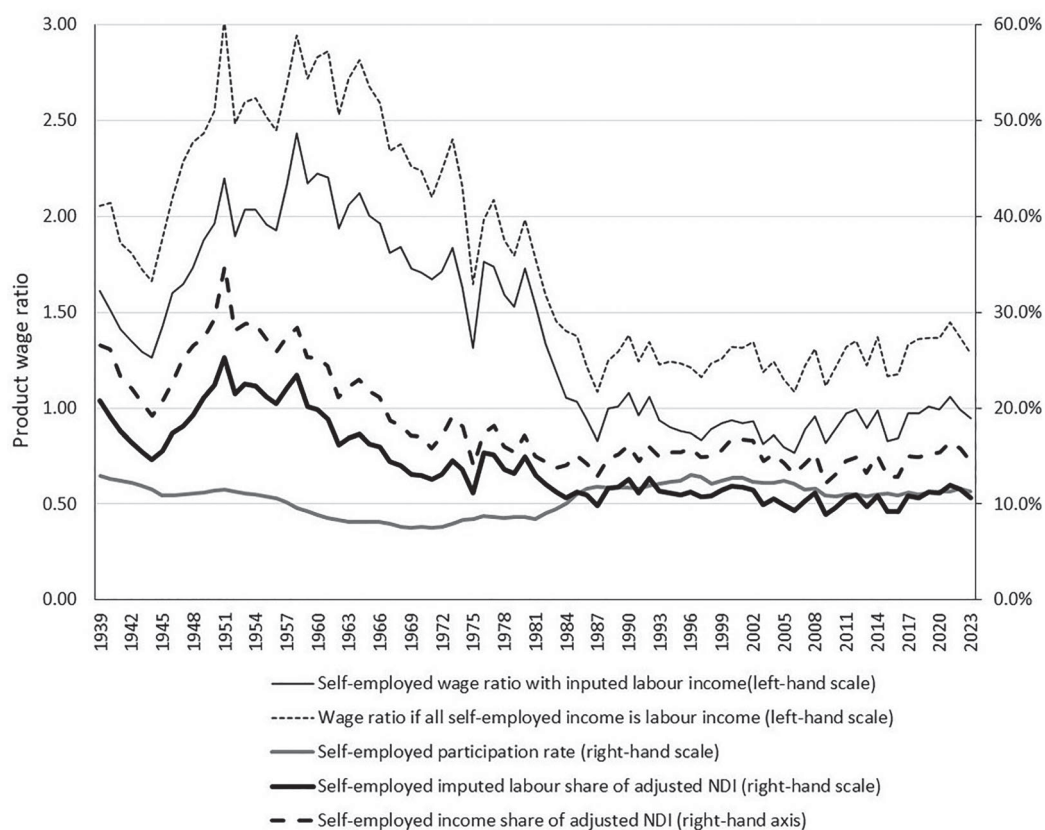
Figure 8. Results of imputing labour income to the self-employed. Source: Table 5 in the Statistical Appendix.

This procedure yields a Wage Ratio for the self-employed that declines radically from the late 1950s to the mid-1980s. Initially this went with a decline in their relative numbers between the Second World War and the mid-1970s (when many self-employed were transformed into employees, or shareholders in corporatised firms), but through the 1970s and early 1980s the participation rate was rising at the same time as their income share and imputed Wage Ratio were falling, indicating changing fortunes for this group, reflecting the transition noted above from the days when farmers, well remunerated professionals and managers were the dominant part of the self-employed to an era when contractors and sub-contractors on insecure terms of employment became increasingly important.[10]

While there is a small peak in the Wage Ratio for the self-employed in 1992, it is part of a bumpy downward trend and far from being the prominent feature it is for employees. The ratio then flattens out in the period up to 2023. Nothing in these numbers suggests any need to modify our conclusions regarding the 1992–1993 turning point in the overall Wage Ratio. The very radical downward trend in our self-employed Wage Ratio in the late 1970s and early 1980s does suggest that, if anything, our approach may have attributed too much of self-employed income to labour in the first half of our period, and too little in the second half. But our main result in Figure 2 is not under threat.

3.5. Combined labour force

Combining employees, the self-employed, and the unemployed in Statistical Appendix Table 6, and plotting the results in Figure 9, we find that the Figure 2 picture holds true for the labour force as a whole. The picture found earlier for employees is strengthened by the inclusion of imputed labour
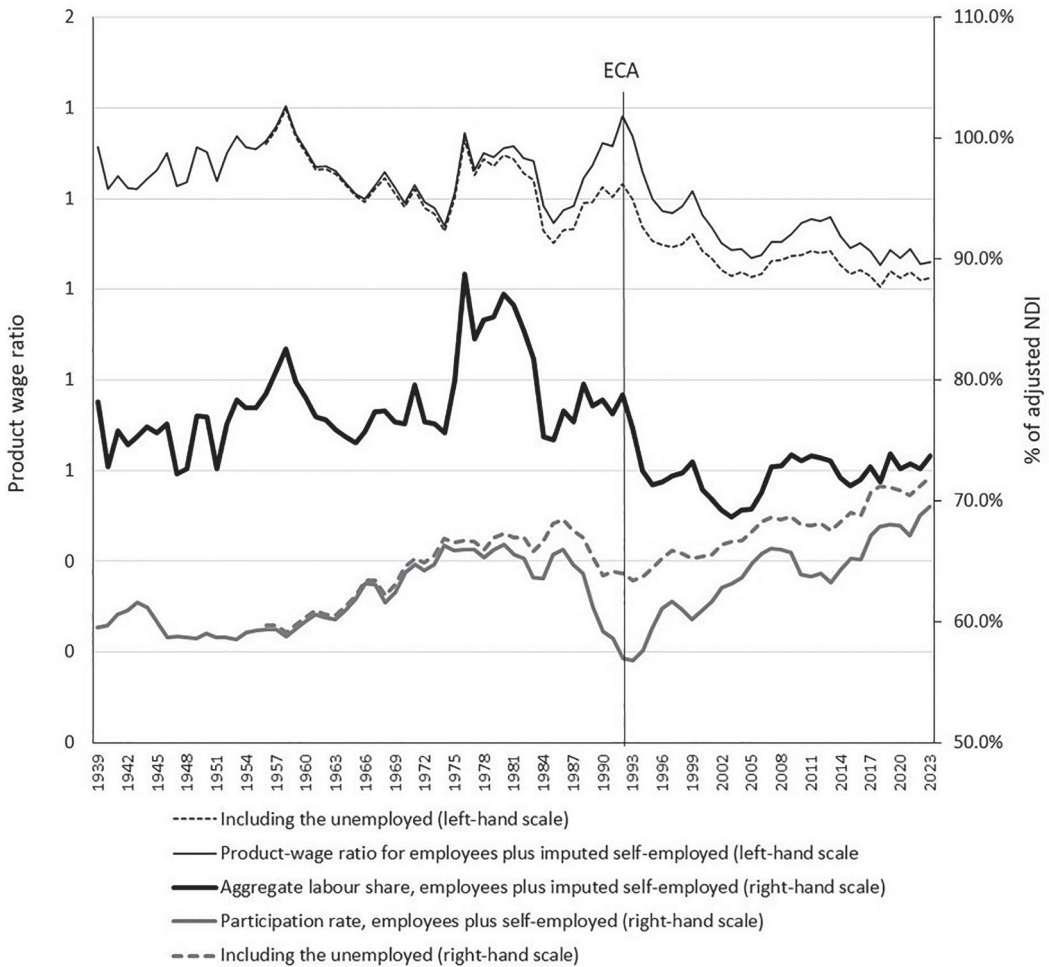
Figure 9. Components of the aggregate labour share with imputed self-employed labour income included. Source: Table 6 in the Statistical Appendix.

income for the self-employed, the relative stability of the Wage Ratio from 1939 to 1991 is reinforced, and the downward trend after 1992 remains clearcut.

Figure 10, using data from Statistical Appendix Table 7, pulls together the Wage Ratio calculated for: employees, employees plus unemployed, self-employed, employees plus self-employed, and employees plus self-employed plus unemployed.[11] The most important message is that the strongly contrasting experience of employees and the self-employed does not overturn our identification of 1991–1992 as a turning point in labour relations.

3.6. The international picture

New Zealand is a small open economy tied into the global capitalist system by trade, capital flows, migration and shared policy discourse. Hence, while the domestic political developments discussed to this point have had important effects on wages, prices and asymmetries of power, it has to be borne in mind that a falling labour share has been common across OECD countries in the past half-century. Not only was the reform programme leading up to the ECA largely imported from political and intellectual developments in the UK and USA, but global market forces came to bear increasingly directly on the New Zealand economy as protection, subsidies and regulations were stripped
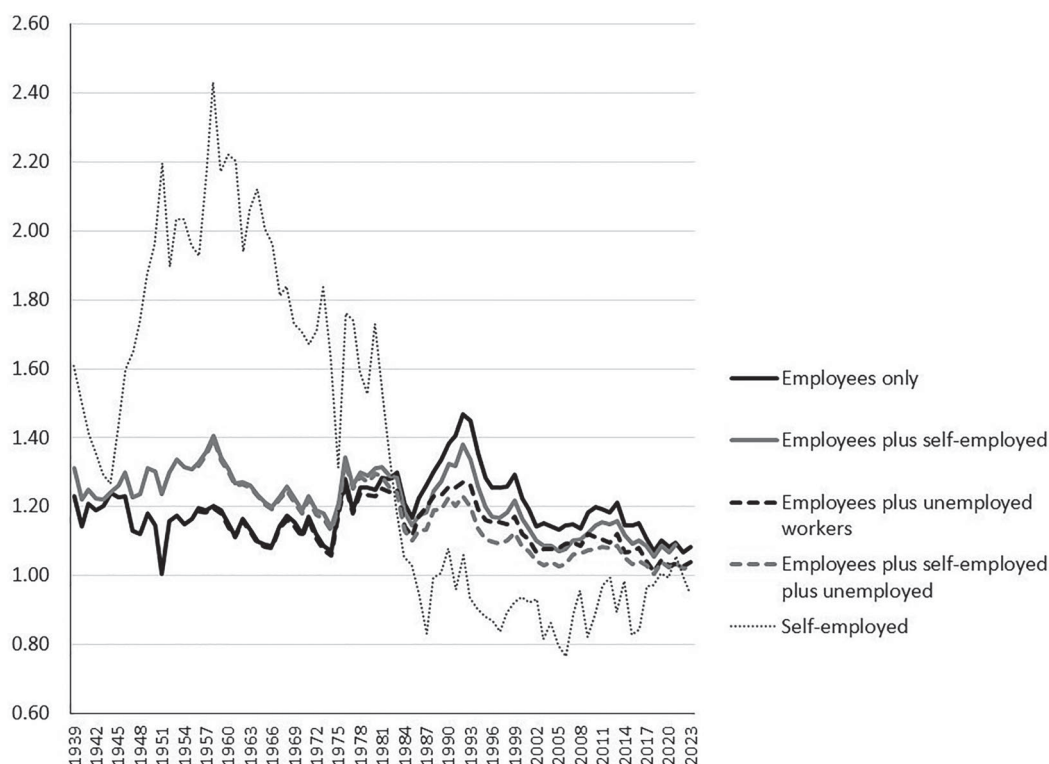
Figure 10. Wage ratios calculated for various labour-force groups. Source: Statistical Appendix Table 7.

away from the late 1980s. Data on national income, population, and wages in the European Union's AMECO database[12] enable us to replicate our wage-ratio calculation covering the period from the 1970s to 2018 for 16 OECD economies as well as New Zealand. We use AMECO data 1960–2019 to see (i) whether New Zealand's hump-shaped history of the Wage Ratio was shared with other countries or stood out as different; and (ii) whether the 1992 March year (roughly equal to the 1991 calendar year for which many countries' statistics are reported) was a common turning point.

The data set covers 33 countries, for all of which we have calculated their Wage Ratios using equation (1) in the paper. The results of this exercise are arrayed in Figure 11, with two series shown for New Zealand – one from the AMECO data and one from our calculated series in column (10) of Table 1.[13] The Wage Ratio in New Zealand has run consistently below the level in most other OECD economies.[14]

Of the 33 countries in Figure 11, 17 have data covering the period from 1970 forward, with several extending back to 1960. Comparison of long-run trends shows that these fall into three distinct groups:

- Seven economies (Spain, France, Finland, Luxemburg, Japan, Australia and New Zealand) share the New Zealand pattern of a Wage Ratio that rises in the two or three decades beginning 1960, peaks in the period 1980–1995, and thereafter declines (Figure 12);
- Seven economies (Belgium, Canada, Iceland, Netherlands, Norway, Korea and the United States) display a steady long-run decline in their Wage Ratios from 1960 or 1970 through 2019 (Figure 13):
- Three economies (Denmark, Italy and Mexico) show no long-run trend (Figure 14).
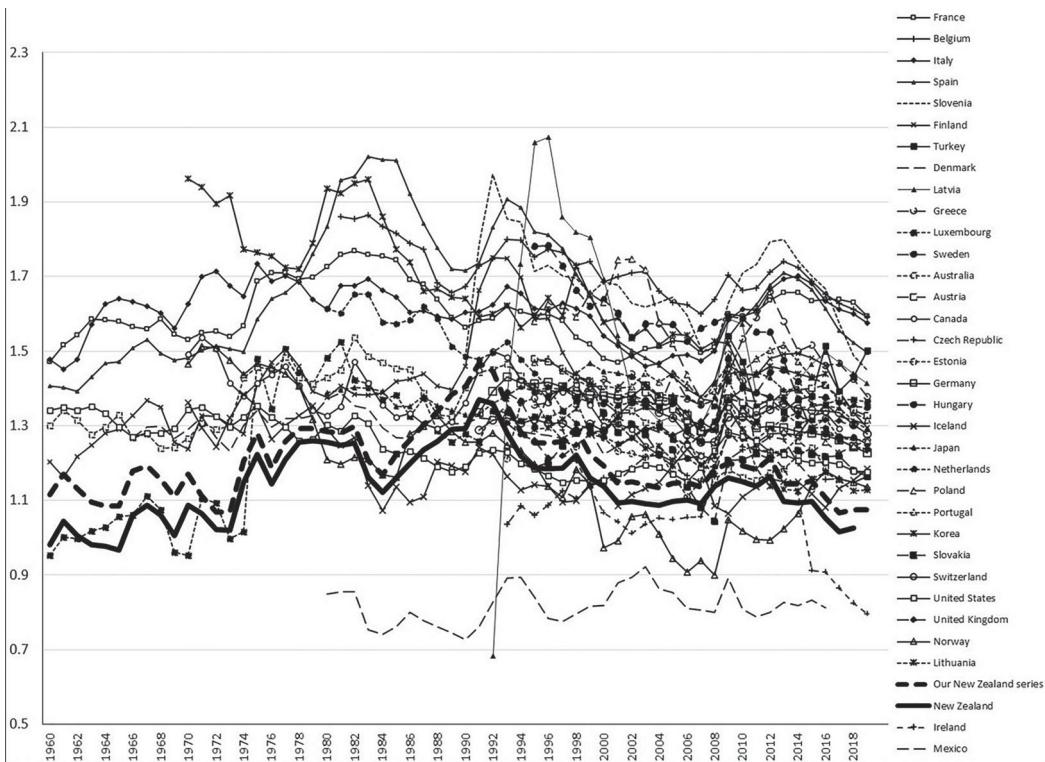
Figure 11. Wage ratios compared across 33 OECD economies.

Of the remaining 16 countries for which we lack data back before 1991, eight have had downward-trending Wage Ratios over the past three decades (Figure 15) and eight have been constant or upward-sloped (Figure 16).

We conclude that of those countries for which the AMECO database provides long-run data, there are six (including Australia) that resemble New Zealand in having had Wage Ratios that rose to the 1980s and fell from the 1990s. There are seven countries, including the USA, which saw their Wage Ratios fall steadily throughout the period, with no sign of turning points in the early 1990s, and three with no obvious trend. Of the countries for which data is available only after 1990, eight exhibit a downward trend and eight are constant or upward-sloped.

What of common turning points among the seven hump-shaped countries? Spain, Finland, Australia and New Zealand all show peaks in the early 1990s, though New Zealand leads these by a year or so. But New Zealand runs against the trend of a falling ratio 1984–1990 in all six of the other hump countries. There is definitely a country-specific story to be told.

No obvious reason stands out for why one set of OECD economies saw reversal of a previously-rising Wage Ratio while a slightly larger set had constant or declining ratios over the entire period. As the core economy of the OECD and the developed world, the US might have been expected to set the pace for the rest, but its consistent downward trend was matched by only six of the OECD economies for which we have long-term data.

It could be argued that in the face of the downward trend in the USA, the upward path of the Wage Ratio in the seven 'hump' countries was ultimately unsustainable, and they were eventually forced to change course in response to factor-price-equalising pressures across the developed-capitalist world. In that case, significance attaches even more to the circumstances in which each arrived at its country-specific turning point. But there is evidently no globally-determined hump-shaped path for the Wage
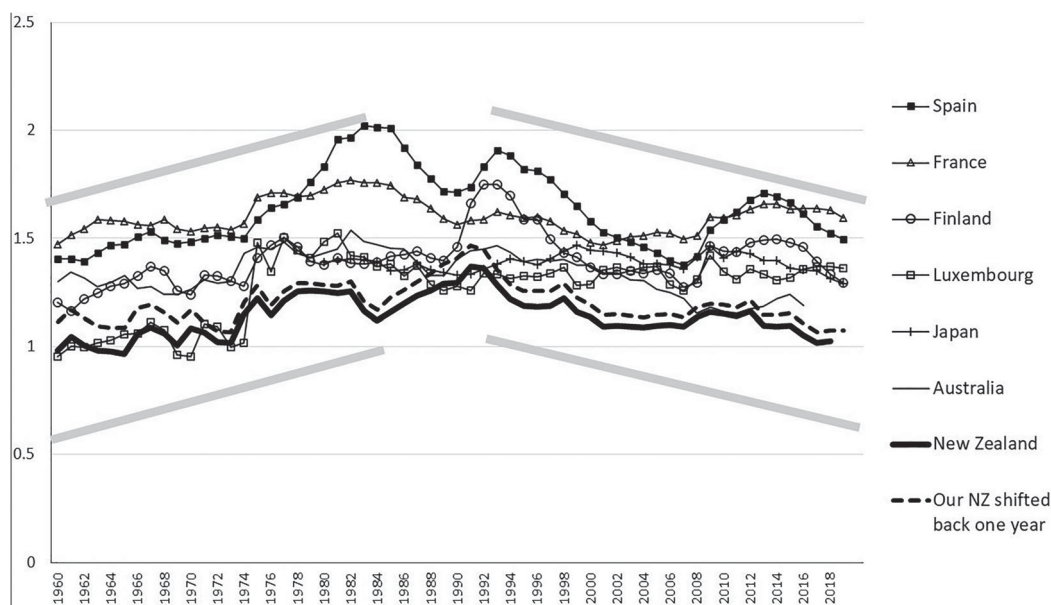
Figure 12. Wage ratios for seven 'hump' cases.
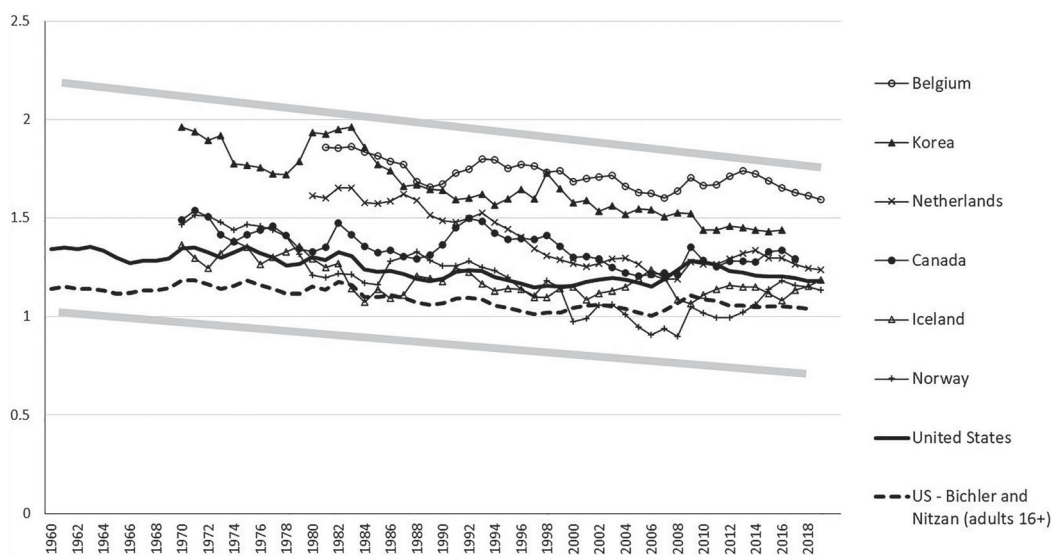
Figure 13. Wage ratios compared: seven with long-run downward trend

Ratio, which means there is space for country-specific narratives such as the one we have constructed for New Zealand.

The cross-country comparative literature on factor shares includes many papers that attempt to find econometric explanations for changes in the 'labour share' and 'capital share' (for example Autor *et al.*, 2017, 2020, Blanchard 1997, Azmat *et al.*, 2012; Bengsston & Waldenström, 2018; Bengsston, Rubolino, & Waldenström, 2020; Eggertsson *et al.*, 2018; Guschanski & Onaran, 2018; Onaran & Guschanski, 2018), but there seem to be none as yet focusing on the Wage Ratio. A recurrent theme in

Figure 14. Wage ratios compared: countries with no clear trend 1960–2018.

Figure 15. Wage ratios compared: eight countries with post-1990 data only, downward-sloping.

Figure 16. Wage ratios compared: eight countries with post-1990 data only, upward slope or no clear trend.

the literature, however, is the importance of separating out general international trends from country-specific ones.

3.7. Industry detail

In the course of research for this paper, data were assembled at the industry level for years since 1947, to check the possibility of some s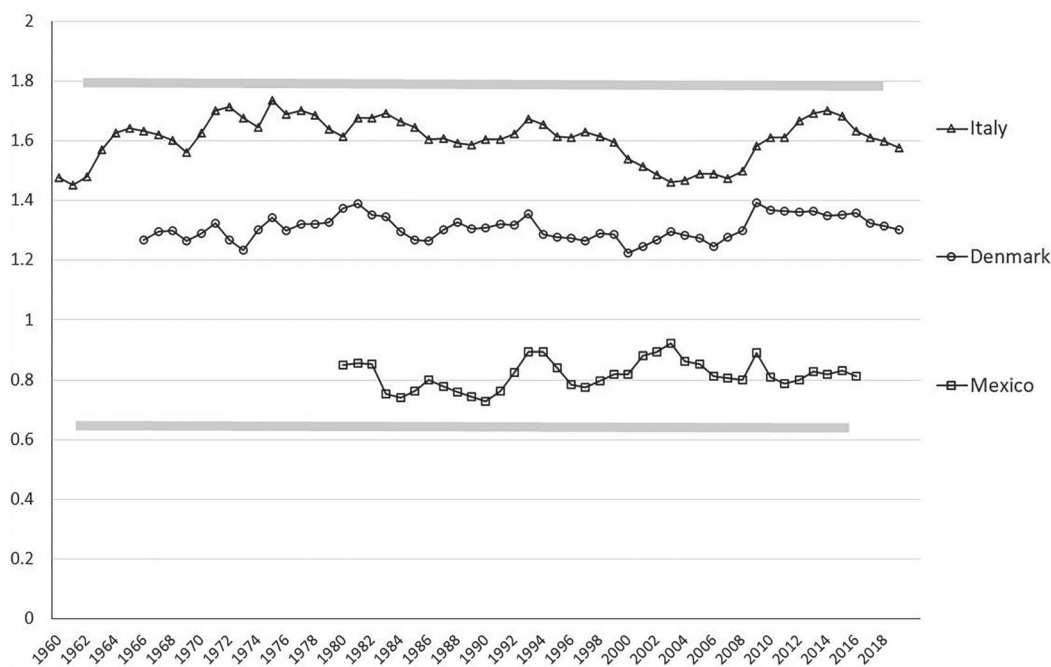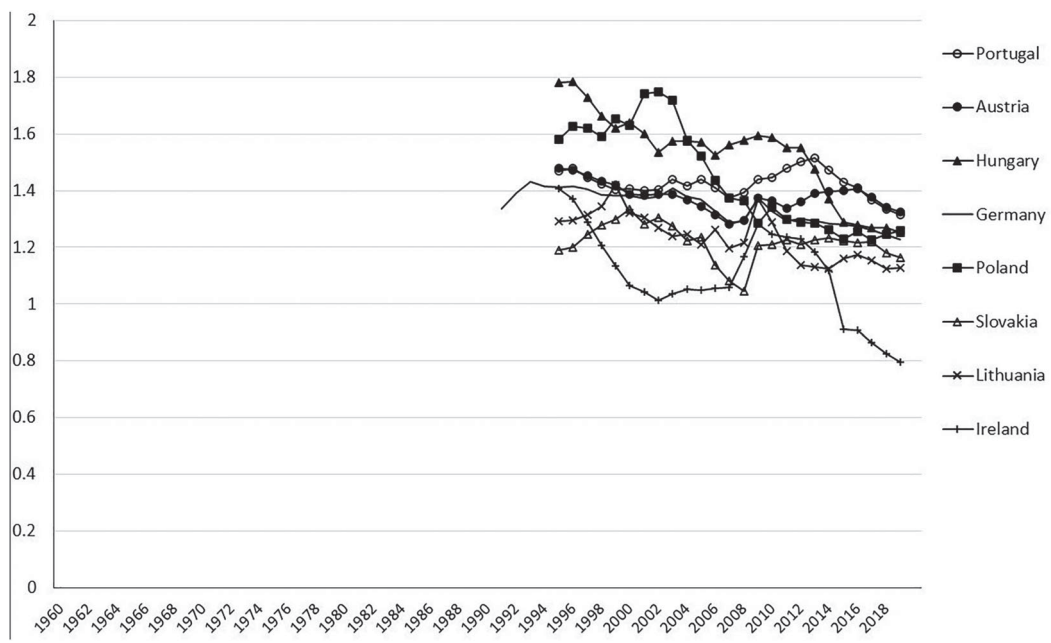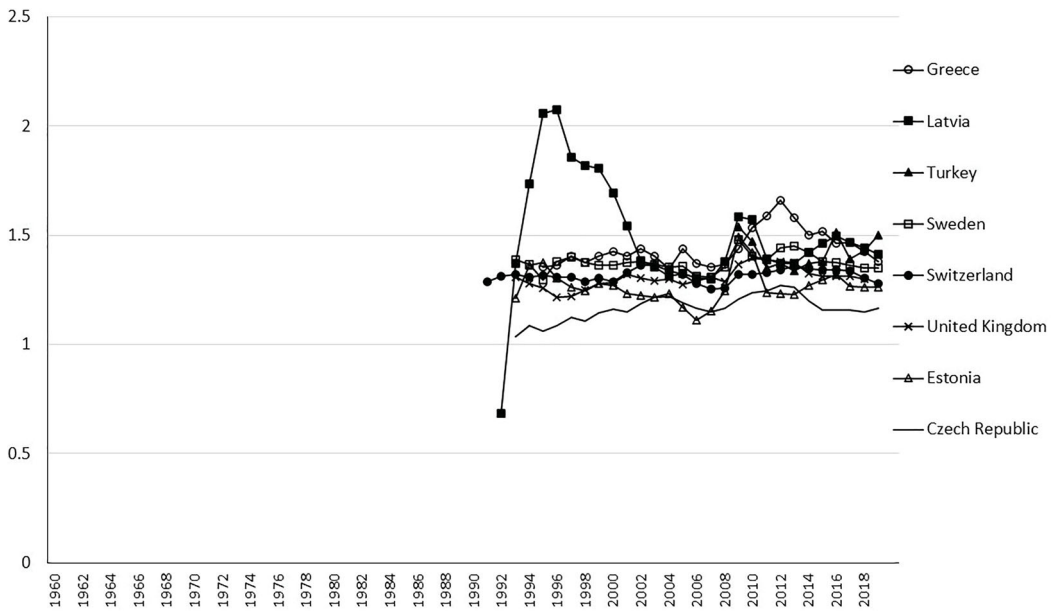tructural change in the economy that might account for the two break-points and the trend change in the Wage Ratio. Nothing was found to overturn our results and conclusions. Appendix 2 reports on this exercise and the data are arrayed in Statistical Appendix Tables 8 and 9.

4. Conclusions

We conclude that there was a decisive downturn in the trend of the Wage Ratio in the early 1990s, coinciding with the ECA and the benefit cuts. Comparing Figures 2 and 9 with Figure 1, it is clear that the apparently steady decline in the aggregate labour share of the social product between 1980 and 2002 shown in Figure 1, which initially motivated this study, and which gives the impression of a simple two-period story of a rising share from 1939 to 1980 and a falling share thereafter, has to be replaced by a more fundamental story of three historical phases in each of which a distinctive set of trends was at work. They can be summarised as follows, and then explained in more detail. The start and end dates should be regarded as indicative.

Period 1, 1939-1974: The labour share rises with an increasing employment rate, leaving the Wage Ratio steady.

Period 2, 1975-1993: The oil shocks hit profits while real wages are unchanged. The rising labour share is reversed, but a more rapidly falling employment rate and NDI raise the Wage Ratio.

Period 3, 1994-2023: Policy action suppresses both the real wage and the labour share. A rising employment rate is now accompanied by a decline of the Wage Ratio to an historic low.

Up to the mid-1970s the rising proportion of adults in employment was matched by a rising share of NDI allocated to wages and salaries. Therefore the labour share of total income rose while the Wage Ratio held steady.

From 1975 to 1993 in the aftermath of the first oil shock, the severity of the shock to NDI and operating surplus initially jolted both the labour share and the Wage Ratio up, but from 1975 on, rising unemployment and a falling participation rate were working to drag the labour share back down. Meantime the real wage rate held steady (albeit with downward fluctuations in the late 1970s and during the 1982–1984 Freeze). The combination of a steady real wage rate for those employed with a falling employment rate and (from the mid-1980s) steeply falling national income, had the ironic effect of holding the Wage Ratio up, and even driving it to a peak in 1992, despite shrinking union membership and weakened labour militancy.

Then came the policy-induced turning point of the early 1990s, when the ECA combined with sharp cuts to welfare benefits to shock the labour market onto a new path. After 1992, employment recovery took place in a context where the labour share continued to fall as the employment rate rose, a process reflected in the downward path of the Wage Ratio. Some flattening of the Wage Ratio from 2002, and a brief recovery to 2009, reflected the effects of (i) the Employment Relations Act which replaced the ECA in 2000 and restored some scope for labour to organise and bargain, (ii) increases in the statutory minimum wage and (iii) falling unemployment. But that short-lived recovery was ended by the Global Financial Crisis. Since 2012 the Wage Ratio has resumed its downward path. In the period 2018–2023 the Wage Ratio for the combined labour force including the self-employed was the lowest it has been in the period since 1939.

The findings of this analysis are, of course, only as good as the data and assumptions that lie behind our tables and charts. The source notes below Tables 1–9 in the Statistical Appendix explain the construction of the data set from successive sets of national accounts – the 'Old National Accounts' for years before 1962; the original, discontinued, System of National Accounts series between 1962 and 1971 (the 'old SNA'), and the current System of National Accounts ('SNEA') for years from 1972 on. To obtain consistent series, in several cases we have used trends from the ONA accounts, and from the old SNA accounts from 1962 to 1971, to back-cast series from the SNEA, thus chain-linking the three sets of accounts. Generally speaking we believe that this is the best that can realistically be achieved, and that different ways of reconciling old and new series would be unlikely to change the broad picture.

In this paper, we have explored some long-run statistical series for the New Zealand labour market both to identify long-run trends and to provide an answer to the question posed at the start, namely: might the Employment Contracts Act 1991 have really made the dramatic difference to the wage path that qualitative accounts suggest, but that previous studies of the 'labour share' failed to find?

Our answer is yes. The sharp downturn in the Wage Ratio at 1992 signalled a long process of wage suppression that was still continuing as of 2021. The econometric story is one of progressive decoupling of the labour share from the employment rate/participation rate. Whereas in mid-century the entry of an increasing proportion of the adult population into work went along with a correspondingly rising labour share as total income was reallocated to fund a rising wages-fund share of the total product, rising unemployment during the 1970s and 1980s weakened that process, and after 1992 there was a complete decoupling: as a rising proportion of the adult population took up paid work, the wages share of total income stayed fixed or fell. Analyses that focus on the aggregate labour share of the product fail to reveal the real turning point because of the dominant role of employment trends rather than wages *per se* in driving the 'labour share' during the 1980s. It is the Wage Ratio, not the aggregate labour share, that reveals the impact of labour-market deregulation and benefit cuts in 1991, and the extent of subsequent wage suppression under the post-1991 institutional arrangements.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes

1. Note that the New Zealand national accounts are compiled for years ending in March, so that most of the calendar year 1991, during which the Employment Contracts Act 1991 became law, appears in the 1992 year in our tables and charts.
2. In the case of studies that explain a falling LIS in terms of changing composition of output, such as Bridgman & Greenaway-McGreevy, 2022.
3. There is obviously some mismatch between Blaug's 'average income per head of the population' and Bichler and Nitzans' income per adult. Although we work with the latter, similar results are obtained using total population. The advantage of using adult population is that it yields a meaningful employment measure (the employment or participation rate), and attributes national income to those overwhelmingly receiving it – the adult population.
4. Easton however was referring to the rising proportion of employees relative to self-employed, rather than to the rising employee participation rate in the population in general, which is what is shown in our Figure 2.
5. The sharp upward movement of the Wage Ratio was caused almost entirely by the 10% fall in real adjusted Net Domestic Income per adult (the denominator of the Wage Ratio) between 1985 and 1992, while the real wage was the same at the end of the period as at the beginning. The average real wage per employee fell 8% between 1982 and 1985, recovered 7% to 1987, and then rose much more slowly to reach just 1% above its 1982 value by 1992, by which time it was stagnating in the face of mass unemployment. Including the unemployed as zero-wage workers, the average real product wage per employee fell 1% between 1985 and 1992.
6. LIS' and EMP' are de-trended 1939–2023 time series. The regression lines are after transformation to correct for serial correlation of the errors: see Appendix 1 for details.
7. Wage rates (hourly and weekly) by sex are available in Employment Surveys carried out by the Department of Labour from 1973 to 1988 and by Statistics New Zealand from 1989 to the present. However these surveys do not cover the smallest employers and certain industries, notably agriculture and fishing. Since 1998 an income survey carried out annually with the Household Labour Force Survey (HLFS) has covered all industries. We use wage series of weekly earnings and numbers of employees to estimate total wage payments for each sex and hence the proportion of total wages going to each. These proportions are chain-linked to that derived from the HLFS income series. Compensation of employees is split in the same ratio, and each share divided by the number of employees of the respective genders to calculate the Wage Ratio.
8. Hence Equation (1) is now written with 'full-time-equivalent employees' in place of 'employees'.
9. Easton (1983) Chapters 5 and 6 and page 37 describes the relatively-prosperous status of the self-employed in the postwar era and imputes their labour income as 140% of average employee income. In contrast, in our Statistical Appendix Table 5 we have divided net self-employed income between labour and capital in the same ratio as for compensation of employees in adjusted Net Domestic Income excluding mixed income. Our Figure 11 therefore almost certainly understates the extent of decline in self-employed labour income and hence in our imputed self-employed Wage Ratio.
10. Statistics New Zealand's December 2018 *Survey of Working Life* showed 143,800 out of the 308,700 sole self-employed – those without employees, who make up two-thirds of the self-employed – were contractors – see https://www.stats.govt.nz/assets/Uploads/Labour-market-statistics-Survey-of-working-life/Labour-market-stati stics-working-life-December-2018-quarter/Download-data/labour-market-statis tics-working-life-december-2018-quarter.xlsx Table 7.
11. Note that we are assuming, consistent with HLFS statistics since 1986, that self-employed unemployment is minimal.
12. https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-dat abases/macro-economic-database-ameco_en accessed November 2021. The database covers 33 countries but only 18 (including New Zealand) have data for years before 1990.
13. Because the New Zealand figures are for years ended March 31 whereas the AMECO data are for calendar years, we have shifted the Table 1 March-year series back one year to provide a rough match.
14. This may be due partly to differing definitions of 'employment' across countries.
15. The Durbin-Watson statistic is 2 when there is no serial correlation. The values shown all strongly reject correlation with a p of 0.72 in the first period and > 0.9 in the other two periods. For details of the Prais-Winsten estimation see Wooldridge (2003, p. 402:405).
16. In column 7 of Table A5, the slope is not significantly different from zero at any acceptable confidence level.

17. The tests were conducted in two ways. The first used a z statistic by dividing the difference between the two coefficients by a pooled standard error. The second uses the combined data from the two periods, interacting a dummy variable indicating the period with EMP'_{t-1}. They give broadly consistent results though somewhat different probability values. The above table reports the results from the second method.

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Appendices

Appendix 1. Regression analysis

Visually, the wage ratio in Figures 2 and 3 of the paper exhibits strikingly different trends in three periods over the 85 years of data. From 1939 to the mid-1970s it is flat or slightly downward-sloping, with a dramatic downward spike in the single year 1951. From the mid-1970s to 1992 it trends up. Thereafter it trends down. In this appendix, we look for statistical evidence that those turning points coincide with significant structural breaks (shifts) in the underlying relationships, and for evidence of the changing strength of those relationships.

Equation (1) in the main paper is an identity relating the labour share of national income to the rate of employment of the adult population and the Wage Ratio. Writing LIS_t for the labour income share at time t, EMP_t for the ratio of employees to the total adult population (the 'employment rate'), and WR_t for the Wage Ratio, we obtain

$$LIS_t \equiv EMP_t.WR_t$$

$$\rightarrow WR_t \equiv \frac{LIS_t}{EMP_t} \tag{A1}$$

The wage ratio can thus be thought of as the relationship between two underlying ratios: the labour share of adjusted Net Domestic Income, LIS, and the employment rate of the adult population, EMP. This can be written as a regression equation of the form

$$LIS_t = \beta_0 + \beta_1 EMP_t + u_t \quad t = 1939 - 2023 \tag{A2}$$

where u_t is the error term.

Using data for EMP and LIS from Table 1 of the Statistical Appendix (columns 3 and 12 respectively), a simple regression analysis of equation (3) produces the results in Table A1 below, confirming a significant positive relationship between LIS and EMP ($p < 0.001$ on coefficients and regression). This relationship is in a sense a macroeconomic analogue to the familiar 'wage curve' (Blanchflower and Oswald 1990, 1994, 1995; Card, 1995; Campbell & Orszag, 1998), which shows (usually from microeconomic data) a negative relation between the real wage rate and the level of unemployment. That curve has been estimated for New Zealand by Morrison and Poot (1998) and Papps (2001).

Causality

Intuitively, causality would be expected to run from EMP to LIS, with changes in the employed proportion of the adult population causing changes in the labour share. To test for this we used the **grangertest** function in the statistical software package R, with the results set out in Table A2. This indicates highly significant Granger-causality when EMP is lagged one period, and significant results for lags of higher order.

The opposite test, for causality from LIS to EMP, gave the results in Table A3. For 1 and 2 lags, p is less than 0.05 so we cannot discount some reverse effects. However, from lags 3 and higher (only 3 are shown) p exceeds any reasonable threshold and so the null hypothesis of no causality cannot be rejected.

In the analysis which follows we have treated EMP as the independent variable and have lagged it one period to reflect the likely direction of causation.

Structural breaks

Using the **breakpoints** function in the **strucchange** package in R (which implements the algorithm in Bai and Perron (2003)) to search for breakpoints in equation (3) above gives the results and confidence intervals shown in Table A4 and Figure A1. This indicates that in estimating equation (A2) and variants of it, it will be appropriate to treat the relationship between EMP and LIS as shifting at around 1974 and 1993.

Detrending the data

Both EMP and LIS exhibit statistically significant upward trends over the 85 years 1939–2023, with trend lines (standard errors in brackets)

$$\text{Trend}_{EMP} = -0.6793 + 0.000605\,Year$$

$$(0.3084) \quad (0.000156)$$

$$\text{Trend}_{LIS} = -0.76037 + 0.000696\,Year$$

$$(0.3957) \quad (0.0002)$$

Removing these trends from the data (subtracting in each year the trend from the actual, and adding the result to the mean value of the trend) gives de-trended series LIS' and EMP' which are set out in columns (17) and (18) of Table

1 in the Statistical Appendix. These are the data used for the rest of the regression analysis below. *LIS'$_t$ is* plotted against *EMP'$_{t−1}$* in Figure A1, using different symbols for the three periods identified by the structural break test above, but showing the single regression equation for the full period 1940–2023 (1939 is missing because of the one-year lag of *EMP'*).

Regressions

Inspection of Figure A2 suggests the design of a set of regressions to capture the history of the *LIS'/EMP'* relationship, and hence the course of the Wage Ratio over our period of 84 years. Table A5 sets out the results of this exercise. First, in Column (1), is the simple relation shown in Table A1 above between contemporaneous values of *EMP* and *LIS*, but this time using the detrended values *EMP'* and *LIS'*. Column (2) shows the results with *EMP'* lagged one period, corresponding to the fitted long-run trend shown in Figure 5 above. Column (3) adds a dummy for the period 1975–1993 (the period bookended by the two structural breaks identified above). Column (4) adds another dummy for the outlier year 1951 in Figure A2, when the Korean War boom massively increased the non-labour part of NDI.

Looking across the four regressions for the full period in columns 1–4, it can be seen that all coefficients are highly significant and that the explanatory power, as measured by Adjusted R-squared, increases from 0.251–0.797 as, first, the one-year lag on *EMP'*, and then the two dummies, are added. The corresponding F-statistics follow a similar trend. Columns 3 and 4 represent the best results, indicating a strong relationship that shifted up in 1975 and down again in 1994, with corresponding changes in the trend of the Wage Ratio.

To get a clearer picture of the three periods/regimes identified by the structural break test, we examined separate regressions of *LIS'* on *EMP'$_{t−1}$* for the three periods 1939–1974, 1975–1993 and 1994–2023. A Durbin-Watson test found there was serial correlation of the errors for each of these so we used Prais-Winsten (PW) estimation which transforms the data in order to remove the correlation. Columns (5) to (7) show the results of the separate regressions after this transformation, including the Durbin-Watson (DW) statistic.[15] The results are striking. To help visualise them, Figure A3 presents again the scatter plot from Figure A2, this time with the trend lines shown for the three periods.

The strength of the relationship between *EMP'$_{t−1}$* and *LIS'$_t$* was greatest in the first period up to the mid-1970s, visually weaker in the second (though not statistically significantly weaker), and vanished[16] following the ECA in the third period. Further testing of the coefficients on *EMP'$_{t−1}$* shows that the difference between them in the first two periods is not statistically significant, but that both are statistically significantly different from that in the last, 1994–2023 period. The latter difference is at least at the 99% confidence level. See Table A6.[17]

We interpret the slope of the relationship – the degree to which employees' share of income rises as the economy-wide demand for labour rises – as an indicator of labour's bargaining power. While there may have been some reduction over the second period, the real change is where it vanishes in the 1994–2023 period. We interpret this as indicating erosion of workers' market power from strong in mid-century, possibly weakening somewhat during the 1970s and 1980s (perhaps reflecting the 1982–1984 wage freeze), and then becoming extremely weak in the post-ECA labour market. Thus although over the long run 1939–2023 the labour share was positively related to the employment rate, the strength of the relationship changed with the prevailing economic and policy environment.

Appendix 2. Industry detail

The analysis in this paper is at the aggregate level, and it might be that our focus on the policy-regime switch around 1992 has overlooked underlying changes in the structure of the economy that might account for the 1992 turning point. Certainly it is true that over the eight decades of our study the industry composition of employment in the New Zealand economy changed very radically. Statistical Appendix Table 8 and Figure A4 assemble industry-level employment data for the period 1947–2023. Because definitions and coverage differ among the various sources, there are breaks in the data at 1960, 1978 and 1990 but the broad patterns are clear.

Detailed sector definitions and coverage changed from source to source, accounting for the jumps at 1960, 1978 and 1990. For example 'real estate and business services' are included in the FIRE (finance, insurance, real estate and business services) industry only from 1960, while hotels and restaurants are excluded from the 'trade, hotels and restaurants' industry prior to 1960. Also the agriculture, forestry and fishing series clearly jumps in 1978 as a wider range of activities and services were included - the pre-1978 data from Bushnell and Gibson (1982) counted employees only in agriculture itself (and then only permanent employees) whereas the HLFS series which we have back-cast to 1978 includes forestry and fishing. But these detailed definitional changes leave intact the broad trends.

Over the full period 1947–2021, primary production (agriculture, forestry, fishing and mining) along with public utilities (electricity, gas, water and waste services) do not exhibit radical changes in their employment shares, and in any case do not carry enough weight in the total to shift the economy-wide Wage Ratio. Construction and transport and communications fall from 20% to 13%, a significant drop, with a slight turnaround of construction in the 1990s. Manufacturing collapses from 29% to 10%, with an especially steep drop around 1990. The remaining service industries (trade, restaurants and hotels, FIRE, and other services) rise from a combined 41% in 1947 to 70% in 2023, with FIRE accounting for over half of the increase.

Table A1. Regression of LIS_t on EMP_t.

	β_0	β_1
	0.23818***	0.72996***
t statistics	4.03609	6.44810
R^2	0.3338	

Table A2. Testing for Granger causality from EMP to LIS.

Lags	F statistic	Df	Prob > F	Significance
1	12.919	1, 81	0.0005572	***
2	6.8211	2, 78	0.001862	**
3	5.3357	3, 75	0.002189	**
4	5.3393	4, 72	0.0008019	***
5	4.2064	5, 69	0.002144	**
6	3.501	6, 66	0.004567	**
7	3.1139	7, 63	0.006928	**

Significance codes: '***' $P <\ =\ 0.001$; '**' $p <\ =\ 0.01$; '*' $p <\ =\ 0.05$.

Table A3. Testing for Granger causality from LIS to EMP.

Lags	F statistic	Df	Prob > F	Significance
1	16.405	1, 81	0.0001165	***
2	3.3604	2, 78	0.03982	*
3	2.0082	3, 75	0.12	

Significance codes: '***' $P <\ =\ 0.001$; '**' $p <\ =\ 0.01$; '*' $p <\ =\ 0.05$.

Table A4. Breakpoints and confidence intervals.

	2.5%	Breakpoint	97.5%
1	1973	1974	1975
2	1992	1993	1995

Given this dramatic shift in employment from manufacturing to services, and especially to FIRE, the possibility arises that these industries might have had major differences in the levels or trends of their real wage rates or wage shares sufficient to explain the wage-ratio trends in Figure 2 of the main paper.

Figure A5 traces some industry-level detail on the wage share of gross value added since 1960. In manufacturing, the wage share has averaged just below 70% since the 1960s, but with quite wide fluctuations, including a downturn around 1992 that it shared with trade, transport and construction. The industries that gained employment share from manufacturing spanned a wide range of wage shares, from the FIRE sectors at 50% and falling to the 'other' (non-government) services around the 80% mark. A falling weight of manufacturing and rising weight of FIRE could have dragged the aggregate wage share down over that period, but the rising weight of other services would have counteracted this. Figures A4 and A5 do not display any trend break in industry employment or labour share around 1992 that might translate to a full explanation for the Wage-Ratio turning point at that year. (The construction of satisfactory Wage-Ratio estimates for individual industries has not been possible for conceptual reasons – we do not have an industry-level analogue for economy-wide NDI per adult.)

Table A5. Regression results.

Dependent variable LIS′$_t$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Years	1939–2023	1940–2023	1940–2023	1940–2023	1940–1974	1975–1993	1994–2023
n =	85	84	84	84	35	19	30
Independent variables:							
Constant	0.278***	0.212***	0.326***	0.338***	0.162	0.370***	0.510***
	(0.063)	(−0.059)	(0.039)	(0.034)	(0.100)	(0.091)	(0.073)
EMP′$_t$	0.654***						
	(0.121)						
EMP′$_{t-1}$		0.781***	0.531***	0.511***	0.847***	0.578**	0.168
		(−0.114)	(0.075)	(0.067)	(0.191)	(0.169)	(0.144)
1975–1993 dummy			0.070***	0.069***			
			(0.006)	(0.006)			
1951 dummy				−0.096***	−0.077***		
				(0.021)	(0.013)		
Adjusted R^2	0.251	0.358	0.745	0.797	0.867	0.882	0.939
F-statistic	29.1***	47.4***	122.2***	109.8***	111.7***	135.1***	450.3***
DW statistic					1.908	2.074	2.029

Standard errors in brackets.
Significance codes: '***' $P <= 0.001$; '**' $p <= 0.01$; '*' $p <= 0.05$; '.' $p <= 0.1$.

Table A6. Testing whether regression coefficients are different between periods.

	1940–1974 compared to 1975–1993	1940 −1974 compared to 1994–2023	1975–1993 compared to 1994–2023
	Probability that the parameters are the same in both periods		
Parameter	(1)	(2)	(3)
Intercept	$P < 0.05$ ($p > |t| = 0.039$)	$p < 0.01$ ($p > |t| = 0.008$)	$p < 0.001$ ($p > |t| = 0.00005$)
Slope (EMP′ coefficient)	$p > 0.4$ ($p > |t| = 0.459$)	$p < 0.01$ ($p > |t| = 0.005$)	$p < 0.01$ ($p > |t| = 0.001$)
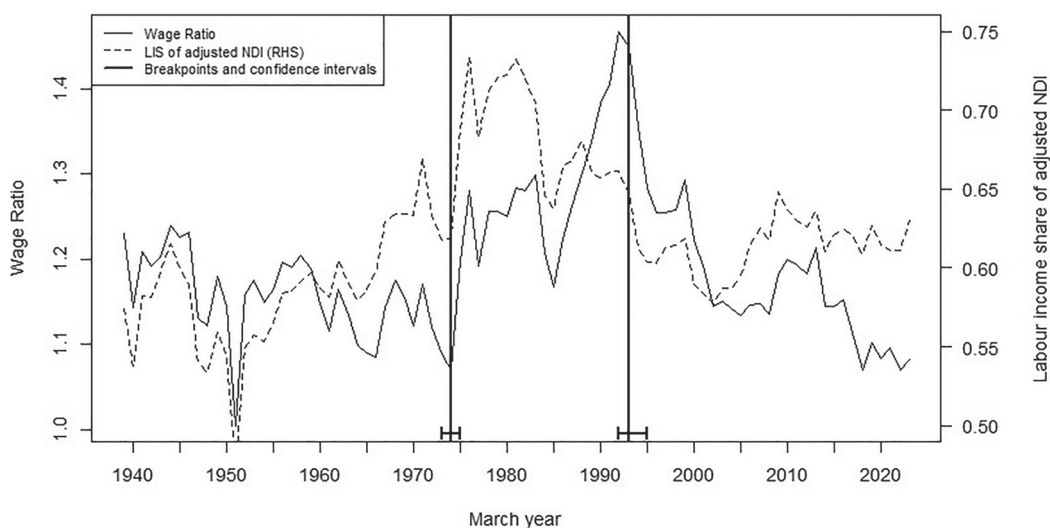
Figure A1. Breakpoints in the wage ratio and the adjusted labour income share.
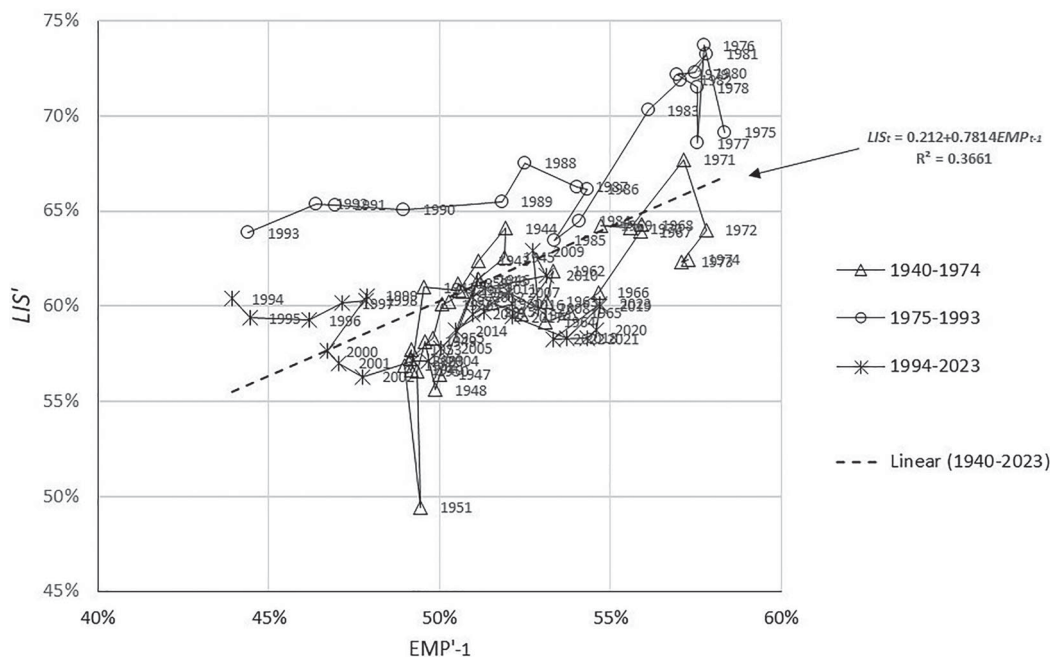
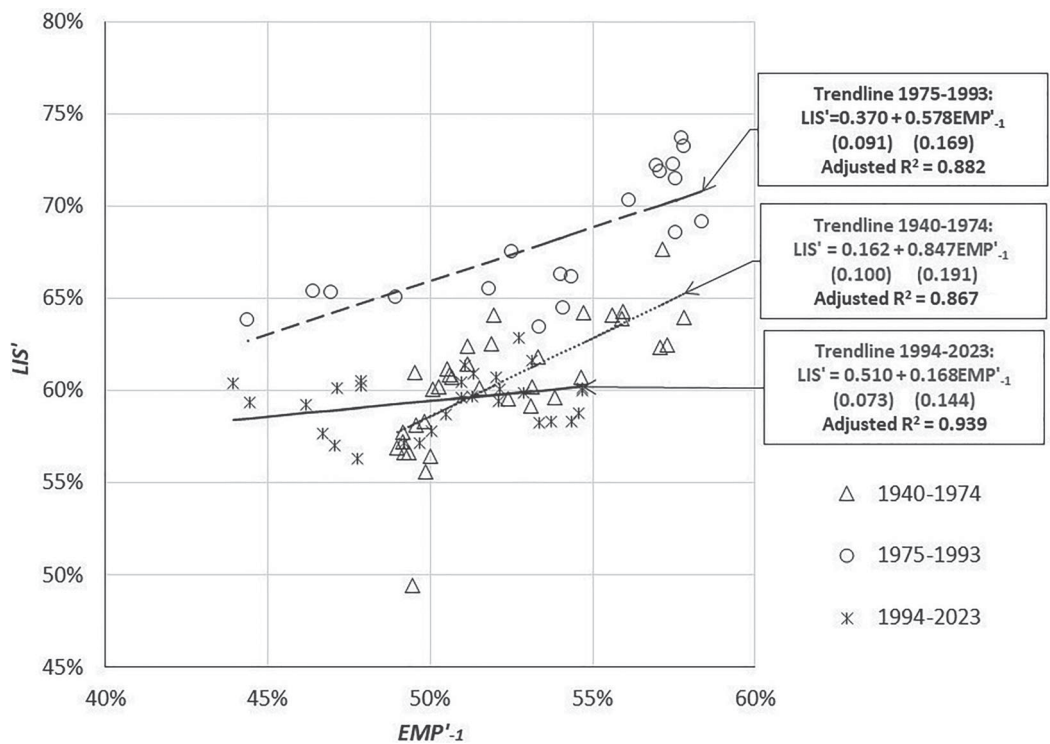**Figure A2.** Scatter plot and regression line for LIS'_t against EMP'_{t-1} 1940–2023.

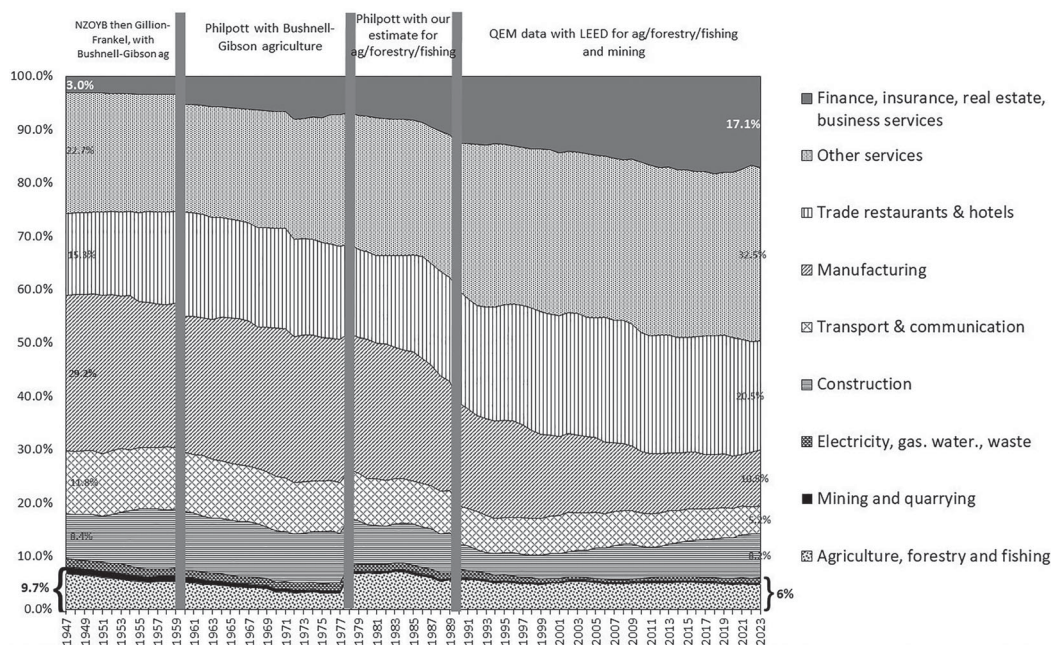**Figure A3.** Regression lines of LIS'_t against EMP'_{t-1} for three periods.

Figure A4. Industry distribution of wage- and salary-earning employees, 1947–2023. Source: Table 8 in the Statistical Appendix.

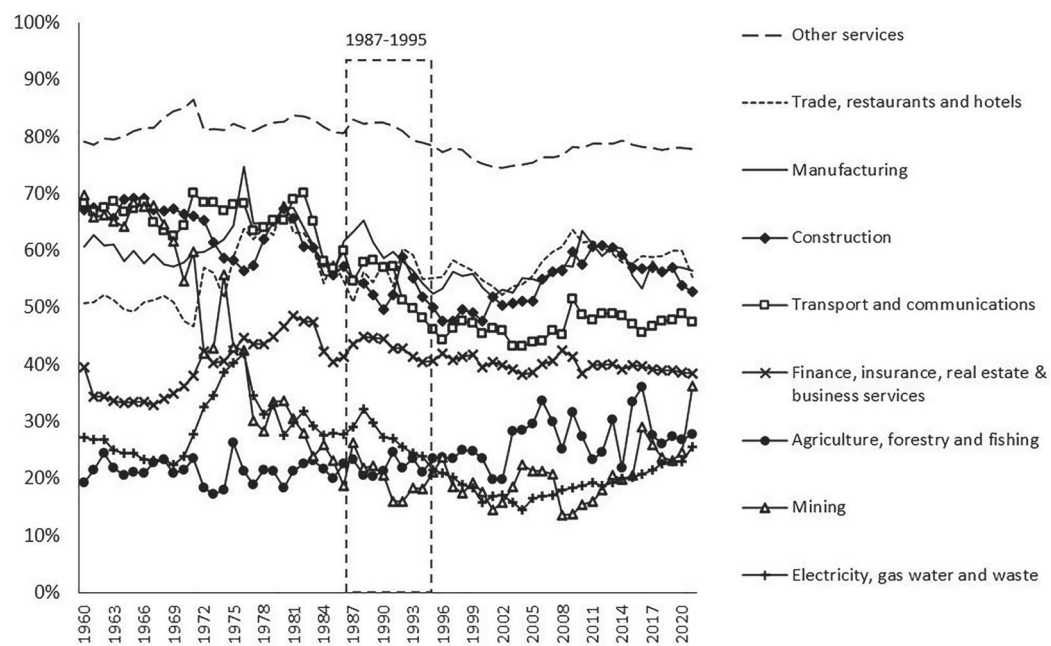**Figure A5.** Wage and salary share of gross value added by industry, 1960–2021. Source: Table 9 in the Statistical Appendix .